

What's inside:

2nd MEDEA annual meeting in Crete
Page 01

Recruitment of Cardiac (Atrial Fibrillation) Patients
Page 02

Recruitment of Asthmatic Children
Page 03

Multi-Scale Dust Modelling to describe a severe Dust Storm event
Page 04

LIFE MEDEA dissemination activities and media appearances
- Find us on social media
Page 05

We want to hear from you

We value the opinion of our readers and we are looking forward to receive your feedback about this newsletter.

Please send us a personal email with your suggestions or comments to the following address:

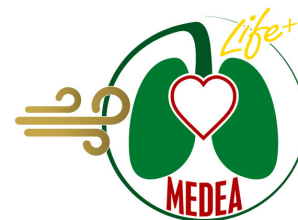
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LIFE MEDEA NEWSLETTER



2nd LIFE MEDEA Annual Meeting

The 2nd Annual Meeting and Colloquium of LIFE MEDEA were held on November 29th-30th 2018 at University of Crete in Heraklion. The meeting assessed the overall progress of the project with a particular focus on the MEDEA pilot phase and the preparatory activities for the launch of the main panel studies in Spring 2019. The meeting also included a Colloquium on recent trends of Desert Dust Storm (DDS) events in light of the climate change and training sessions on the use of the MEDEA e-platform by ENA Consulting (MEDEA IT partner).

During the colloquium, MEDEA scientists gave informative talks regarding the frequency and features of DDS events and their effects on health. The project coordinator, Prof Yiallourous gave a brief description of the project while Dr Michaelidi and Dr Simantirakis from University of Crete discussed the effects of Desert Dust Storms on children's health and adult patients with Heart Disease. Dr Achilleos from Cyprus University of Technology presented some first results of the project regarding the frequency of DDS events in the Eastern Mediterranean during the last 20 years while Prof Mihalopoulos from the University of Crete focused on the chemical composition of DDS events in Crete and Cyprus. Lastly, Prof Koutrakis from Harvard University, shared with the audience, his experience from previous studies that focused on the effects of Climate Change and DDS events in the region of Kuwait.



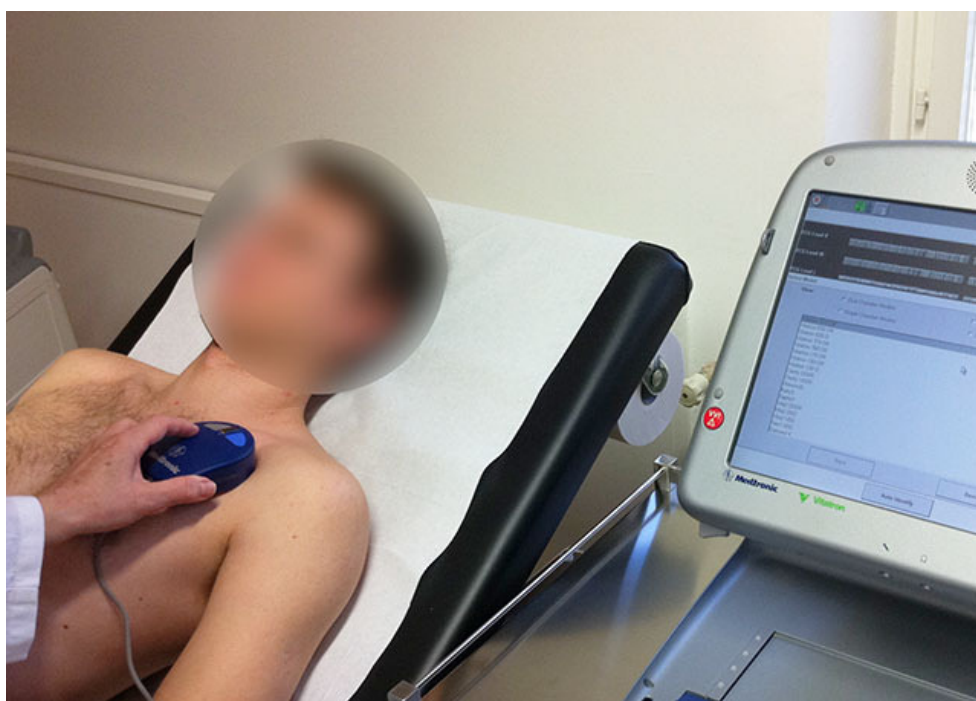
Message from the Project Coordinator

Welcome to the 2nd edition of the LIFE MEDEA bi-annual e-newsletter which aims to disseminate information on the progress and activities of LIFE MEDEA, to the scientific community, regulatory authorities and the general public. The current edition provides an overview of the project's 2nd meeting that took place in Heraklion Crete and presents the progress in the recruitment of Asthmatic Children and Atrial Fibrillation patients for the purposes of the MEDEA panel studies. Furthermore, the current edition also highlights a MEDEA case study on the meteorology and forecasting of an extreme Desert Dust Storm event that affected Crete in March 2018, a phenomenon that appears in an increasing frequency in the context of climate change. On behalf of MEDEA project team, we hope that you will enjoy reading this edition and we wish you a happy and prosperous 2019.

Professor
Panayiotis Yiallourous,
Coordinator LIFE MEDEA

Recruitment of Cardiac (Atrial Fibrillation) Patients

The MEDEA project involves the recruitment of Atrial Fibrillation (AF) patients and children with asthma, two patient groups that are well known to be sensitive to Desert Dust Storm (DDS) events. For the identification and recruitment of eligible AF patients in Cyprus, Greece and Israel, the MEDEA team is cooperating with the Cardiac Electrophysiologist Teams in Nicosia and Limassol General Hospitals (Cyprus), in Heraklion University Hospital (Crete, Greece) and in Soroka Medical Center (Beersheba, Israel). Eligible patients are considered patients with an implanted Pacemaker or Defibrillator (ICD) devices that exhibit Paroxysmal Atrial Fibrillation. The identification of Paroxysmal Atrial Fibrillation in AF patients is carried out during their routine pacemaker/ICD check-up at the electrophysiology clinic. Subsequently, MEDEA study personnel informs the patients about the increase in incidence of DDS events due to Climate Change and introduces the LIFE+MEDEA project importance in protecting their health from such events. The patients are also informed on how they can participate in the study and those who agree are signed-up and are guided through the next steps. To date, more than 90 eligible patients have signed-up for the study and recruitment is still on-going.





Pilot Outdoor and Indoor Sampler set-up in primary schools

As part of the MEDEA pilot study, MEDEA personnel set-up outdoor and indoor particle samplers in the premises of primary schools in Nicosia and Heraklion. The pilot set-up gave the opportunity to MEDEA personnel to gain additional experience with the equipment and identify minor problems that have been resolved.

Recruitment of Asthmatic Children

The LIFE MEDEA project also involves the recruitment of asthmatic children aged 6 to 11 years old. The recruitment of asthmatic children takes place in primary schools in Nicosia (Cyprus) and Heraklion (Crete, Greece). The recruitment process involves the performance of informative visits to primary school by MEDEA study personnel, where concepts relevant to Climate Change such as the Greenhouse Effect, air pollution and DDS events as well as concepts relevant to Health such as nutrition, respiratory health and smoking are presented to children and their parents in a series of interactive presentations. The presentations are age-appropriate and were developed with the support of the Cyprus Pedagogical Institute, an organisation which is actively participating in the MEDEA Advisory Committee. As a next step, all children received questionnaires regarding their respiratory health, which aimed to identify children with asthmatic symptoms that are eligible to take part in the MEDEA panel study. In summary, more than 2000 children from 13 primary schools in Nicosia and Heraklion were screened with questionnaires and the average participation rate was remarkably high at 75%. In total, more than 300 eligible children have been identified in both countries and the MEDEA personnel is now in the process of contacting their parents in order for these children to be enrolled in the MEDEA panel study.



Multi-Scale dust modelling to describe and forecast Desert Dust Storm events in the Mediterranean

During the past year, the island of Crete experienced a record breaking dust storm event. More specifically on March 22nd, a severe North African dust event affected areas in central and eastern Crete, with peak PM10 concentrations reaching 4730 $\mu\text{g}/\text{m}^3$ in Heraklion and 6340 $\mu\text{g}/\text{m}^3$ in Finokalia.

As part of the MEDEA project, researchers from the University of Crete have analysed the event and the relevant meteorological processes that took place in various atmospheric levels, in an effort to better understand the distinct mechanisms that are usually combined to lead to Mediterranean dust events. This knowledge can help meteorologists to better inform their models and provide accurate forecasting for such events within the framework of an early warning system. The full scientific paper by Solomos et al. is freely accessible online in the Atmosphere journal website (<https://www.mdpi.com/2073-4433/9/7/240/htm>).

More specifically, Dr Solomos and his team have demonstrated, through simulations of WRF-Chem (a meteorological model), the role of synoptic air movements that combine to result in high PM10 levels near surface.

However, and despite the complexity of the event the meteorological simulations by WRF-Chem were able to reproduce, with satisfactory agreement, the major spatiotemporal and quantitative properties of the specific event thus demonstrating the potential of the specific model and possibly others, to accurately forecast Desert Dust storm events.

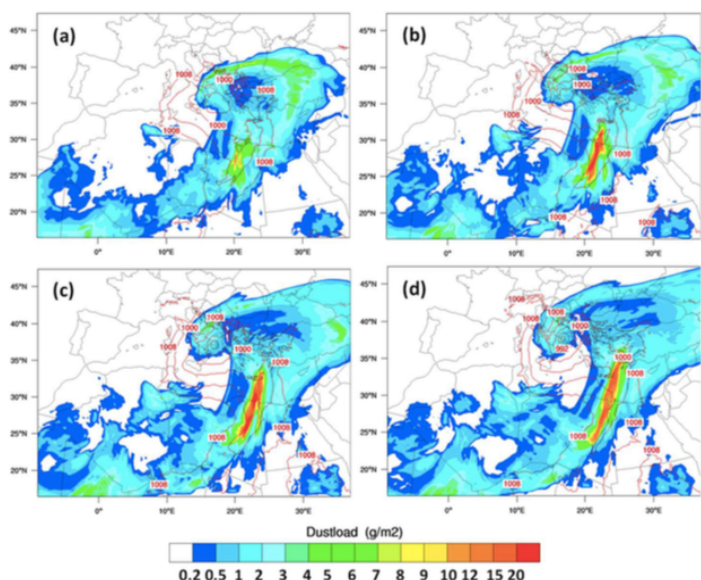


Figure 1: Dustload on 22 March 2018, at times (a) 0900 UTC, (b) 1200 UTC (c) 1500 UTC (d) 1800 UTC.

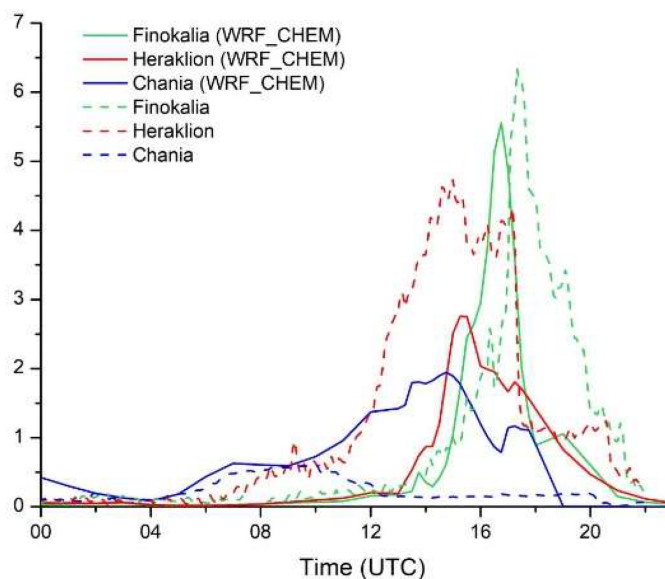


Figure 2: PM10 concentration relative to time. Dashed lines represent the in situ measurements while the solid lines represent the values reproduced by the WRF-Chem model.

LIFE-MEDEA dissemination activities and media appearances

During the previous months, the LIFE-MEDEA project and the role of climate change, DDS events and their associated health effects were discussed in various media outlets while MEDEA personnel participated in a number of public meetings and other dissemination events. Noteworthy, are the interviews given to ERT Crete Radio and SKY Crete Radio as well as to the Politis and Kathimerini newspapers in Cyprus. In addition shorter news pieces were covered by various websites such as Kanali6.com.cy and Alpanewslive. The project was also presented and discussed during the LIFE networking event that was organised by the Department of Environment and the LIFE Cyclamen project in December 2018. Furthermore, in November 2018, the MEDEA project hosted a networking event which included participants from other LIFE projects (LIFE Smartpv Project, LIFE Adapt2clima Project) and the Hungarian LIFE National Contact Point team.



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